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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY, DOCKET NO.	CONFIRMATION NO.
10/506,425	09/02/2004	Hideaki Kashihara	51023-023	1224
20277	7590	06/28/2006	EXAMINER	
MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			THOMAS, JAISON P	
			ART UNIT	PAPER NUMBER
			1751	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/506,425

Applicant(s)

KASHIHARA ET AL.

Examiner

Jaison P. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/04, 4/05, 3/06.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 recites the limitation "reducing agent" in line 2 of Claim 5. There is insufficient antecedent basis for this limitation in the claim.

For purposes of examination, Claim 5 will be taken to depend on Claim 4 instead of Claim 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naoki et al. (JP 2000-124662) in view of Kang et al. (JP 08-273431).

Naoki et al. teaches a conductive paste for making a conductive film that has a "chain-like floc, two or more metal particles mean the shape of a straight chain" (pg. 1, para. 0005). Metal particles disclosed include gold, platinum, silver, copper, ruthenium, rhodium, iridium and osmium (pg. 2, paras. 0009-0010).

(<http://www.minerals.net/resources/property/magnetic.htm>). Particle sizes range from 1 nm to 10 nm for particles composing the chain-like floc (pg. 2, para. 0008). Therefore it

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is inherent that the diameter of the disclosed straight chain would also be at least 1 nm.

One example disclosed in the reference utilizes of adding a reducing agent to precipitate out the chain-like metal floc particles (pg. 2, para. 0012). Among the included components used to formulate the conductive film organic and inorganic system binders are used (pg. 3, para. 0015). Naoki also teaches that the metal particles be present at 10% by weight of the composition in the cured conductive film (pg. 3, para. 0018). The reference also teaches a variety of methods to spread the conductive paste onto a substrate, including methods such as the spin coat, roll coat, dip, meniscus coat, and gravure methods.

Naoki is relied upon as discussed above, however, Naoki does not disclose metal particles that have ferromagnetic properties.

Kang discloses a conductive paste material that contains metal particles that are grown into a dendrite type structure (Abstract). The metal particles are selected from a group that includes platinum, copper, nickel, gold, silver, and palladium (Abstract) wherein the nickel exhibits ferromagnetic properties.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the nickel of Kang with metal particles Naoki because the substitution of art recognized equivalents as shown by Kang and Naoki is within the level of ordinary skill in the art. Both use similar sets of metal particles in conductive paste/electronic part applications and metals from both sets are taken from the same groups in the Periodic Chart and therefore can be expected to have similar properties.

With respect to the L/D ratio limitation of instant Claim 1, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the particle and length ratios of Lin et al. through routine experimentation for best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the prima facie case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

With respect to the orientation of the particles in the thickness direction limitations of instant Claim 2, the reference is silent. However, It would have been obvious to one of ordinary skill in the art at the time the invention was made to realize that any one of the methods used above to apply the prior art film to the substrate could possibly orient the metal particles in the thickness direction of the film.

While the reference does not explicitly teach the use of trivalent titanium compound as a reducing agent the case law states where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the

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burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jin et al. (US Patent No. 4,923,739).

Jin et al. discloses an electrical interconnection medium is made as a composite of electrically conducting, magnetic particles that are magnetically aligned in a non-

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conductive matrix material. The particles are aligned into a network that extends the thickness of the medium (Abstract). Preferred particles include nickel, iron, cobalt and alloys containing said metals. The matrix material can be any polymeric materials such as silicone rubber, epoxies and resins (Column 3, lines 16-18). Also, the reference suggests that particles may be coated with a copper layer that is subsequently coated with a precious metal layer (Column 3, lines 30-44). Particle diameters can range from 0.5 to 10 micrometers (Column 3, lines 53-55) and particle concentration can range from 0.5 to 30 percent by volume of the composition (Column 3, lines 43-47). The composition is utilized in between two electrodes as well (see Example 3, Column 6, lines 25-30). Methods of spreading (which is functionally equivalent to spraying as required by instant Claim 17) a composite containing the metal shaped particles with a polymeric binder (which can be functionally equivalent to a coating agent as required by instant Claim 17) and orienting the particles with a magnetic field, and the subsequent curing are disclosed in Examples 1-3 (Column 5 lines 35-68 thru Column 6 lines 1-30).

With respect to the "chain shape" or "straight chain shape" limitations of instant Claim 1 and Claim 7, the reference is silent, however, the Figures show a structure that can be construed as chain-like and over short distances can be construed as being of a straight chain shape. (See Fig. 1).

With respect to the L/D ratio limitation of instant Claim 1, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the particle and length ratios of Lin et al. through routine experimentation for best results. As to optimization results, a patent will not be granted based upon the

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optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the prima facie case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

While the reference does not explicitly teach the use of trivalent titanium compound as a reducing agent the case law states where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The references are considered cumulative to or less material than those discussed above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison P. Thomas whose telephone number is (571) 272-8917. The examiner can normally be reached on Mon-Fri 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Mark Kopec
Primary Examiner

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JT

Jaison Thomas
Examiner
6/25/2006


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